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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/06/2004

Bernd Gromoll

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STAAS & HALSEY LLP

SUITE 700

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EXAMINER

SCHEUERMANN, DAVID W

ART UNIT

PAPER NUMBER

2834

MAIL DATE

DELIVERY MODE

04/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/516,955	GROMOLL ET AL.	
	Examiner	Art Unit	
	DAVID W. SCHEUERMANN	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-16 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-16 and 18-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

RCE

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/29/2007 has been entered.

Response to Arguments

Applicant's arguments filed 11/29/2007 have been fully considered but they are not persuasive in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14, 15, 16, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fidei, US 3634705 in view of Dustmann, US 4578962. Fidei, US 3634705 shows:

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An electrical machine, comprising:

a rotor rotably mounted; (inherent)

a stator associated with said rotor in a stationary position 10 and containing a stator winding; and

a cooling device, cooling at least parts of said stator, including

[a refrigeration unit comprising at least one cold head (22, Dustmann, US 4578962) having a condenser area with at least one cold surface; and

a closed cooling line system (inherent) being thermally coupled to the cold surface (22, Dustmann, US 4578962) of said refrigeration unit in said condenser area and containing;]

a coolant supply line at one axial end of the stator winding and a coolant return line at the other axial end of the stator winding (this feature is shown in Fidei, US 3634705, note connectors 32, one connected to inlet header 30 and another connected to outlet header 31 as shown in figure 1);

[a coolant thermally coupled to the cold surface of the cold head (22, Dustmann, US 4578962), and said cooling line system thermally coupling said cold head to the heat generating parts of said stator to be cooled with the stator winding, having discrete coolant areas associated with the heat generating parts of said stator to be cooled and being thermally, conductively connected over a large area to the stator parts to be cooled;

wherein the heat generating parts of said stator are located at a geodetic lower level than the cold surface of the cold head (see figure 1, Dustman), and

in which the coolant is circulated by a thermosiphon effect with boiling and vaporizing, the coolant being heated or partially vaporized in the discrete coolant areas and being flowing by natural convection without mechanically pumping.]

Fidei, US 3634705 does not expressly disclose the bracketed material.

Dustmann, US 4578962 teaches using a thermosiphon to circulate cooling fluid for the inherent purpose of eliminating the need for a mechanical pump. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to replace circulation pump 55 of Fidei, US 3634705 with a thermosiphon system of Dustmann, US 4578962. One of ordinary skill in the art would have been motivated to do this so that no separate pump is needed.

Furthermore, Dustmann, US 4578962 teaches using a refrigeration unit with its inherent cold head to cool an electric machine, for the inherent purpose of allowing the machine to operate at its maximum load. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a refrigeration unit with a cold head in to cool cooling fluid of the device of Fidei, US 3634705. One of ordinary skill in the art would have been motivated to do this to enhance the cooling effect.

Finally, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a vaporizable coolant as taught by Dustmann, US 4578962, see column 3, lines 5-15. One of ordinary skill in the art would have been motivated to do this to enhance the cooling effect. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a two-phase

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coolant in the device of the combination of Fidei, US 3634705. One of ordinary skill in the art would have been motivated to do this the take advantage of the large heat capacity of the latent heat of vaporization of the cooling fluid to more effectively cool the stator.

Re claims 14, 16, 18, and 20 note the radial vent ducts in the laminated core as described in column 2, lines 65-70 of Fidei, US 3634705

Re claims 15 and 19, note that connectors 32, as shown in figure 1, one connected to inlet header 30 and another connected to outlet header 31 connect the axial ends of the coolant channel passing through core 10.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID W. SCHEUERMANN whose telephone number is (571)272-2035. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schubert can be reached at (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/D. W. S./
Examiner, Art Unit 2834
April 30, 2008

/Karl I.E. Tamai/
Primary Examiner, Art Unit 2834